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10/025,055	12/19/2001	Michael Sinz	N0565-00006	5951

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PATTERSON & SHERIDAN, LLP/  
SEDNA PATENT SERVICES, LLC  
595 SHREWSBURY AVENUE  
SUITE 100  
SHREWSBURY, NJ 07702

EXAMINER
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JONES III, CLYDE H

ART UNIT	PAPER NUMBER
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2611

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/025,055	<b>Applicant(s)</b> SINZ ET AL.	
	<b>Examiner</b> Clyde H. Jones III	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/19/2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 9, 12, 13, 21, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Bechtel et al. (US 2002/0138500 A1).

Regarding claims 1, 21, and 25 Bechtel teaches an apparatus (and corresponding means and method) for use in a headend system (fig. 1), the apparatus comprising:

means (headend 100) for receiving a plurality of separate MPEG input (data) streams (par. 18, lines 7-11; par. 20, lines 3-8; par. 24, lines 1-3; par. 30, lines 1-6; par. 35, line 10-12; par. 36, lines 5-6; par. 21, lines 4-5);

means (carousel server/manager 210 –fig. 2 & 750 fig. 7, 8, and 9) for merging the plurality of separate input streams and outputting a merged stream that is capable of being processed by a single PID processor (filter) in a television converter apparatus (set-top terminal 170 – fig. 1) (par. 6, lines 5-9; par. 8, lines 4-8; par. 7, lines 1-5; par. 19, lines 14-16; par. 29, lines 8-10; in which streams are merged into stream sets 230 –

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fig. 2/virtual streams – fig. 4 output by a carousel server as a single PID stream per carousel(s) and processed by a single PID processor at the set-top).

Regarding claim 9, Bechtel inherently discloses the merging means include a state machine (to provide state information to the carousel server and performing data partitioning and delivery rate adjustments as disclosed; par. 6, lines 12-21; par. 33, lines 8-11; par. 36).

Regarding claim 12 Bechtel teaches the receiving means include a plurality of user datagram protocol (UDP) network ports (interface 250 – fig. 2; par. 21; par. 35, lines 12-14).

Regarding claim 13, Bechtel inherently discloses the merging means include a respective PID buffer for each one of the input streams (to provide simultaneously provide multiple merged PID streams, adjust data delivery rates, and immediately transmit live feeds as disclosed, because data bandwidth is limited; par. 6, lines 15-18; par. 27; par. 29, lines 8-10; par. 35–par. 36).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (US 2002/0138500 A1) and Eng (US 5,963,557).

Regarding claims 2 and 22, Bechtel teaches the plurality of input streams include a first stream having NET (network) PID data (service/operations data streams/virtual directory information) (par. 8, lines 1-8; par. 23, lines 5-8; par. 26, lines 3-5) and Bechtel further discloses a second headend management system streams (API and headend addressing streams; par. 7, lines 1-12; par. 6, lines 5-7; par. 31-par. 32, lines 5; return path – par. 20).

Bechtel fails to disclose polling data.

In an analogous art, Eng teaches a head-end 112 – fig. 7 sending a stream to a to set-top/ subscriber stations 150 – fig. 7, with polling information so subscribers can send reservation request in a contention free manner (col. 11, lines 8-30; col. 8, lines 14-18; col. 8, lines 40-45);

It would be obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the system of Bechtel to include polling data as taught by Eng for the advantage of more efficiently using upstream bandwidth by indicating upstream access slots to set-tops (col. 11, lines 27-29).

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4. Claims 3-7, 10, 14-20, and 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (US 2002/0138500 A1) in view of Chen et al. (US 5,917,830).

Regarding claims 3 and 26, Bechtel discloses the headend provides MPEG streams to set-top terminals and as discussed above and Bechtel further discloses the head-end using Motorola transmission hardware (par. 19, lines 1-12).

Bechtel fails to disclose one of the input streams contains DCII data.

In an analogous art Chen discloses the input (transmission) streams contain MPEG-2/DCII data (col. 14, lines 16-21 and 38-44).

It would be obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the system of Bechtel to include one of the input streams containing DCII data as taught by Chen for the advantage of providing a standard encrypted and compressed digital broadcast signal.

Regarding claims 4 and 27, Bechtel in view Chen teach at least one DCII packet is split in at least two portions across at least two MPEG-2 packets within one of the at least two input streams (Chen – col. 14, lines 45-48, col. 15, lines 28-36 & 46-49; it would have been obvious to for the purpose of increasing the efficiency/robustness by processing simple packetized elementary streams (PES) – Chen - col. 16, lines 14-17).

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Regarding claims 5, 6 and 10, Bechtel in view of Chen teach inserting packets from another stream (including another input stream, other DCII packets or any non contiguous packet data) between any of the at least two portions of the DCII packet (Chen – col. 16, line 61-col. 17, line 8; col. 14, lines 45-48; col. 4, lines 56-62; in which Chen determines/generates splice points at the boundaries of completed packets for inserting data from a secondary stream into the primary/main stream; it would have been obvious to not insert packets from another input stream/DCII packet in between contiguous packets of the DCII input stream to prevent decompression errors and buffer overflows by maintaining MPEG compliance; Chen - col. 12, lines 46-48; col. 13, lines 32-38; col. 11, lines 49-51; col. 6, lines 21-27).

Regarding claims 7 and 28, Bechtel in view of Chen teach the merging means excludes from the merged stream any received packets that precede a first packet having a start bit that is set (Chen teaches discarding packets that precede a start code (seq\_start\_code packet) in the main stream from the merged stream as shown in fig. 11; col. 19, lines 42-col. 20, line 9; Chen teaches doing this similarly but for the secondary stream – fig. 7; it would have been obvious so that when the merged stream returns to the main/original streams packets after inserting the secondary streams packets or when beginning to insert the secondary streams packets into the main stream there will not be decompression/buffer overflow errors and MPEG compliance is maintained; Chen - col. 17, lines 49-51; col. 20, lines 2-9; col. 13, lines 32-37; col. 12, lines 54-63; col. 6, lines 20-27).

Regarding claim 14, Bechtel fails to disclose each PID buffer includes a buffer state machine that tracks a DCII packet completion state for the input stream corresponding to that PID buffer.

In an analogous art Chen teaches each PID buffer includes a buffer state machine that tracks a DCII packet completion state for the input stream corresponding to that PID buffer (col. 14, lines 16-21 & 38-44; col. 15, lines 27-31; col. 7, lines 6-7; Main stream buffer 480 and insertion stream buffer 490 – fig.4; col. 9, lines 26-34; in which Chen teaches using MPEG-2/DCII standard streams and splicing streams together based on splice in/out points which indicate packet completion boundaries for splicing two data streams into a single MPEG-2/DCII output).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the system of Bechtel to include each PID buffer includes a buffer state machine that tracks a DCII packet completion state for the input stream corresponding to that PID buffer as taught by Chen for the advantages of increased security by enabling encrypted transmission of services and increased robustness of the system by providing a mechanism which reduces decompression/decoding errors.

Regarding claims 15 and 29, Bechtel in view of Chen teach the merging means further comprises an output filter (Chen - Data buffer 485/output buffer 475 – fig. 4), and



only one of the PID buffers (main stream buffer or insertions stream buffer) at a time transmits data from its corresponding input stream to the output filter (Chen - 502, 520, 526, 546, 556 – fig. 5; col. 6, lines 26-37 & 50 53; in which Bechtel in view of Chen alternate the inputs to the output/merged stream).

Regarding claims 16 and 30, Bechtel in view of Chen teach the one of the PID buffers that is currently transmitting data to the output filter continues to transmit data until transmission of a DCII packet is completed (Chen – 520 – fig. 5; col. 12, lines 66- col. 13, line 2; in which Chen in view of Bechtel teach outputting from one of the streams and corresponding streams buffer until completion of current packet (DCII packets) is indicated by a stream done signal).

Regarding claims 17 and 31, Bechtel in view of Chen teach an end of the DCII packet is contained within an MPEG packet (Chen – col. 14, lines 45-55; col. 15, lines 30-49; in which DCII packets are contiguous packetized elementary packets spread across fixed byte MPEG packets); and

the one of the PID buffers that is currently transmitting data to the output filter continues to transmit data to the output filter after transmission of the DCII packet is completed, if a second DCII packet begins within the same MPEG packet as the DCII packet (Bechtel in view of Chen teach that if the contiguous packets in the stream, including the DCII packets, does is not finished it will continue to output the stream until

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a boundary or splice point in the packets is reached/identified; Chen col. 15, lines 51-53; col. 16, lines 61-cik, 17, line 2).

Regarding claims 18 and 32, Bechtel in view of Chen teach a next one of the PID buffers begins to transmit data to the output filter when an end of a DCII packet contained within an MPEG packet is transmitted to the output filter (Chen – 520, 526 – fig. 5; col. 13, lines 1-8), if the MPEG packet does not contain the start of a second DCII packet immediately following the DCII packet (Chen in view of Bechtel teach nulling packets at the end of a boundary/contiguous packet (DCII packet) so that a new packet will not start in the stream following the splice point of the packet; Chen – 512 – fig. 5; col. 12, lines 46-52).

Regarding claim 19, Bechtel in view of Chen teach the output filter rennumbers an MPEG PID value of the merged stream (Bechtel in view of Chen teach the output steam has an updated PID information/tables, e.g., header lengths; Chen - 514 – fig. 5; col. 6, lines 36-46).

Regarding claim 20, Bechtel in view of Chen teach the output filter provides the merged stream to one of the group consisting of a network user datagram protocol address/port (Bechtel – interface 250 fig. 2).

Regarding claim 33, Bechtel in view of Chen teach the output filter updates MPEG continuity counters of the merged stream (col. 8, lines 52-67; col. 6, lines 21-32; col. 9, lines 41-48).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (US 2002/0138500 A1) in view of Chen et al. (US 5,917,830) as applied to claim 3 above, and further in view of Eng (US 5,963,557).

Regarding claim 8, Bechtel teaches the plurality of input streams include a first stream having NET (network) PID data (service/operations data streams/virtual directory information) (par. 8, lines 1-8; par. 23, lines 5-8; par. 26, lines 3-5) and Bechtel further discloses a second headend management system streams (API and headend addressing streams; par. 7, lines 1-12; par. 6, lines 5-7; par. 31-par. 32, lines 5; return path – par. 20). Bechtel in view Chen teach at least one DCII packet is split in at least two portions across at least two MPEG-2 packets within one of the at least two input streams which includes the NET PID data stream (Chen – col. 14, lines 45-48, col. 15, lines 28-36 & 46-49; it would have been obvious for the purpose of increasing the efficiency/robustness by processing simple packetized elementary streams (PES) – Chen - col. 16, lines 14-17). Bechtel and Chen teach the merging means does not insert the headend management system data between any of the at least two portions of the DCII packet (Chen – col. 9, lines 26-35; col. 11, lines 49-51; col. 12, lines 45-49; col. 13, lines 32-38; col. 16, lines 61-col. 17, line 2; col. 17, lines 9-10 & 14-17; in which

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Bechtel and Chen teach not inserting a second stream, i.e., headend management system polling data packets, between an incomplete contiguous set of previously streaming data, i.e., DCII data packets, for the purpose of preventing decompression/decoding and buffer overflow errors).

Bechtel and Cheng fail to disclose polling data.

In an analogous art, Eng teaches a head-end 112 – fig. 7 sending a stream to a to set-top/ subscriber stations 150 – fig. 7, with polling information so subscribers can send reservation request in a contention free manner (col. 11, lines 8-30; col. 8, lines 14-18; col. 8, lines 40-45);

It would be obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the combined systems of Bechtel and Cheng to include polling data as taught by Eng for the advantage of more efficiently using upstream bandwidth by indicating upstream access slots to set-tops (Eng - col. 11, lines 27-29).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (US 2002/0138500 A1) and Puputti (US 2003/0097663 A1).

Regarding claim 11, Bechtel discloses second merging means (carousel) for merging a second plurality of separate input streams and outputting a second merged stream that is capable of being processed by a single PID processor in a television converter apparatus (par 22-23; par. 35, lines 1-5; 816 – fig. 8; 220 – fig. 2; 816 and 818 – fig. 8; par. 35, lines 1-5; in which a plurality of carousels output merged

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streams of separate input streams and further there is one PID processor/filter per carousel in a set-top terminal), wherein:

a first one of the input streams (stream 1) that is to be received by a first PID processor in the television converter apparatus is received by the first merging means (carousel merges output stream sets, 230 – fig. 2 for the corresponding PID processor in the set-top) (par. 7, lines 4-5);

Bechtel further teaches the first merging means transmits a first output stream with datum indicating destination (PIDs 123 – fig. 4) (fig. 4; 824, 816, 855 – fig. 8) .

However, Bechtel fails to disclose first input stream merged within the first output stream has a datum indication that the first output stream is to be received by a second PID processor in the television converter apparatus (the first output stream is designated to go to the second PID processor before its is merged by the second merging means, i.e., carousel);

the second merging means merges the first output data stream with a second one of the plurality of input streams (i.e. stream set 2) that is to be received by the first PID processor in the television converter apparatus to form a second output data stream; and

the second merging means transmits the second output data stream containing data from the first and second input streams to the first PID processor (the first input stream which was merged in the first output destined for the second PID processor is rerouted/merged with another set of streams by the second merging means to the first PID processor).

In an analogous art Puputti teaches first input stream merged within the first output stream has a datum indication that the first output stream is to be received by a second PID processor in the television converter apparatus;

the second merging means merges the first output data stream with a second one of the plurality of input streams that is to be received by the first PID processor in the television converter apparatus to form a second output data stream; and

the second merging means transmits the second output data stream containing data from the first and second input streams to the first PID processor (par. 18, lines 9-11; par. 23; in which when the headend/network operator merges multiple streams/services to another single transmission stream the pre-merged PID information indicating a first location/network address is dynamically updated thus the input stream/service is redirected to the location of the merged transport stream so that changes to services/streams can be readily communicated to the set-top terminals).

It would be obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the system of Betchel to include the first input stream merged within the first output stream has a datum indication that the first output stream is to be received by a second PID processor in the television converter apparatus;

the second merging means merges the first output data stream with a second one of the plurality of input streams that is to be received by the first PID processor in the television converter apparatus to form a second output data stream; and

the second merging means transmits the second output data stream containing data from the first and second input streams to the first PID processor as taught by

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Puputti, for the added advantage of providing additional services while preserving bandwidth (Puputti – par. 24, lines 5-9).

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (US 2002/0138500 A1) and Birnbaum et al. (US 2006/0020974 A1).

Regarding claim 23, Bechtel teaches the set-top terminal has application program interfaces which give the set-top access and information for processing received services and applications (par. 7 and par. 31).

Bechtel fails to specifically disclose the television converter apparatus is programmed to receive updated middleware (API enabling transparent interoperability among diverse platform applications on a single device) program code via a middleware PID processor.

In an analogous art Birnbaum teaches a television converter apparatus is programmed to receive updated middleware (par. 23, lines 1-3; par. 24; par. 34, lines 1-3; par. 238, lines 5-9 to provide multiple services/operating environments without modifying the core software of the set-top; par. 235-236).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Bechtel to include a television converter apparatus is programmed to receive updated middleware as taught by Birnbaum for the added advantages of reuse and portability of the core set-top software allowing new

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applications/operating environments while maintaining the familiar core software core components; Birnbaum – par. 238, lines 5-9).

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (US 2002/0138500 A1) and Birnbaum et al. (US 2006/0020974 A1) as applied to claim 23 above, and further in view of Brosey (US 6,948,186 B1).

Regarding claim 24, Bechtel in view of Birnbaum teach sending multicast address data streams and set-tops filtering of the data streams (Bechtel –par. 28).

However Bechtel in view of Birnbaum fail to disclose a middleware PID processor does not extract any other stream from the merged stream except the stream containing the updated middleware program code.

In an analogous art Brosey teaches a middleware PID processor does not extract any other stream from the merged stream except the stream containing the updated middleware program code (col. 3, lines 39-45; col. 5, lines 18-27).

It would be obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the system of Bechtel in view of Birnbaum to include a middleware PID processor does not extract any other stream from the merged stream except the stream containing the updated middleware program code as taught by Brosey for the added advantage of providing a more robust set-top terminal by increasing flexibility by multitasking certain processors while dedicating other processors to more rigorous specialized applications, e.g., streaming.



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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clyde H. Jones III whose telephone number is 571-272-5946. The examiner can normally be reached on 9-5:30 p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on 571-272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CJ



**CHRISTOPHER GRANT**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**